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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,323	03/03/2004	Lawrence C. Lei	AMAT/5191C1/ISM/CORE/MCVD	4370

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EXAMINER	
PAIK, SANG YEOP	

ART UNIT	PAPER NUMBER
3742	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/792,323	LEI, LAWRENCE C.	
	Examiner	Art Unit	
	Sang Y. Paik	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 8, 9 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (US 6,424,800).

Kim shows a housing with an inlet (62) for receiving a carrier gas from the gas blower (64) and an outlet, a vaporized solid precursor applied to at least one surface, a first wall to support the inlet, the at least one surface located on a second wall adjoining and perpendicular to the first wall, a heating element contained in the housing, a reaction chamber connected to the outlet, the at least one surface made of stainless steel in a linear shape spaced from the inlet to allow passage of the carrier gas, and Kim further shows that a heating element can be contained within the at least one surface. See Figure 10, and column 6, line 6.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe et al (US 6,270,839) in view of Suntola et al (US 4,413,022).

Onoe shows the apparatus for vaporizing a solid precursor claimed including a housing with a carrier gas inlet, an outlet to a reaction chamber for chemical deposition, at least two surfaces with a linear shape with the solid precursor applied thereon, and the surfaces are also made of a mesh or stainless steel and are spaced from each other to allow passing of the carrier gas. One further shows the carrier gas inlet which is directed perpendicular to the two surfaces. However, Onoe does not show having a heating member contained in the housing.

Suntola shows a vaporizer having a housing to contain a solid precursor source therein with a heating element (56) provided to the solid precursor source to vaporize the solid precursor. In view of Suntola, it would have been obvious to one of ordinary skill in the art to adapt Onoe with the heating element provided in the housing to more effectively vaporize the solid precursor.

With respect to claim 7, it would have been obvious to one of ordinary skill in the art to use any solid precursor, including the tantalum or tungsten containing precursor as desired by the user since such material would have been dependent upon the particular purpose of the chemical

deposition. Furthermore it is noted that the material that is worked upon by the apparatus does not limit the apparatus claims.

5. Claims 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe in view of Suntola as applied to claims 1-7 above, and further in view of Turner et al (US 5,674,786) or Tsubouchi et al (US 5,421,895).

Onoe in view of Suntola shows the apparatus claimed except the first wall supporting the inlet is perpendicular to the second wall where the at least one surface is located thereto.

Turner or Tsubouchi shows that it is well known in the art to introduce a gas from the bottom wall of the housing to direct the gas perpendicular to the surface that is heated.

In view of Turner or Tsubouchi, it would have been obvious to one of ordinary skill in the art to adapt Onoe, as modified by Suntola, with the inlet supported on the claimed first wall adjoining and perpendicular to the wall supporting the claimed at least one surface to more conveniently allow the carrier gas to flow directly and perpendicular to the claimed surfaces.

With respect to claim 11, Tsubouchi shows a heating element is embedded in the heating surface. It would have been obvious to further adapt Onoe, as modified by Suntola, with a heating element contained in the surface to more effectively provide the desired heating to vaporize the source material.

With respect to claim 15, it would have been obvious to one of ordinary skill in the art to use any solid precursor, including the tantalum or tungsten containing precursor as desired by the user since such material would have been dependent upon the particular purpose of the chemical deposition. Furthermore it is noted that the material that is worked upon by the apparatus does not limit the apparatus claims.

6. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe in view of Horsky (US 6,452,338).

Onoe shows the apparatus claimed except having a heating member in the wall of the housing.

Horsky shows a vaporizer having heating element provided in the wall of the housing which contains the solid precursor. In view of Horsky, it would have been obvious to one of ordinary skill in the art to adapt Onoe with the heating element in the wall of the housing as an alternative heating element arrangement to also efficiently heat the vaporizing precursor.

With respect to claim 20, it would have been obvious to one of ordinary skill in the art to use any solid precursor, including the tantalum or tungsten containing precursor as desired by the user since such material would have been dependent upon the particular purpose of the chemical deposition. Furthermore it is noted that the material that is worked upon by the apparatus does not limit the apparatus claims.

Response to Arguments

7. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

With respect to Kim, the applicant argues the recited elements including the recited second wall being perpendicular to and adjoining first wall that supports the inlet. This argument is not deemed persuasive since all the recited element are shows as stated in the ground of rejection under Kim.

With respect to Onoe and Suntola, the applicant argues that there is no motivation to combine and further shows Onoe teaching away from such combination because it shows an

oven serving as a heating device which can smaller to facilitate service and reduce parts than that of the Suntola's. This argument is not deemed persuasive since it is noted that Suntola and One both are in the same field of endeavor which is in the field of chemical vapor deposition. Suntola shows heating elements outside the housing as well as inside the housing, and this allows a more enhanced heating to process a source material contained in the housing, and such teaching would have been advantageous in the device of Onoe to facilitate a more efficient chemical vaporization of the precursor material. Furthermore, it is noted that no oven is recited in the claims to distinguish it from the recited housing.

With respect to Horsky, the applicant argues that there is no motivation to combine and further argues that Horsky does not show the use of the carrier gas as determined by vaporizer temperature. This argument is not deemed persuasive since it is noted that Horsky is applied to teach a heater that can be provided within a wall of a housing which contains the solid precursor. Such heating element would facilitate a more efficient and rapid heating of the source material as desired by the applicant in the claimed invention. Just because Horsky does not show the use of the carrier gas does not necessarily teach away or discourage one of ordinary skill in the art to adapt the advantage discovered in Horsky. Further it is noted that the device in Horsky is used to heat the solid precursor as claimed by the applicant in the same field of endeavor which is in the field of chemical vapor deposition. Also it is noted that the flow of carrier gas as determined by vaporizer temperature is not recited in the claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y. Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. P.

Sang Y Paik
Primary Examiner
Art Unit 3742

syp